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International Congresses for Physics, Basle (5-10 September) and Como (11-16 September).

1. Italian participation in these two congresses was very strong. At Basle the Italian representatives, who numbered 35 persons, constituted the largest foreign group present.

2. Russian satellite representatives at the Basle meeting were the following:

a) Czechoslovakia (Prague University)

Joseph BENES
V. PETRIZIKLA

b) Bronislaw BURAS, (Warsaw)
Marian DANYSZ, (Warsaw)
Karol MAJEWSKI, (Warsaw)
Ardrzej SOLTAN, (Warsaw)
Jan WEYSSENHOFF, (Cracow)

3. At the Como Meeting, which was dedicated entirely to the subject of cosmic rays, the satellite representatives were the following:

J. EGYESULETE, Budapest University
V. PETRIZILKA, Prague
J. GIERULA, Cracow
J. WEYSSENHOG, Cracow
S. ROUPPERT, Warsaw

4. It should be noted that from the satellite countries only two persons (PETRIZILKA and WEYSSENHOF) attended both meetings. It is suggested therefore that it may be possible to make a deduction regarding the respective specialities and areas of specialization with regard to the others who attended only one or other of the meetings.*

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5. As already noted above, the Italian representation at Basle numbered 35 persons. Of this total 16 were from the Milan Higher Physics Institute. This fact is of importance, as an indication of the shift in the center of gravity of Italian nuclear energy research to Milan during the past year as a result of the activity of the C.I.S.E. (Centro Informazione Studi Esperionze) organization. The Milan group was the largest among the Italian representation because the C.I.S.E. sustained all expenses of the trip and stay at Basle (about 400 Swiss francs per person), presumably as a part of its program of keeping up-to-date the qualified persons who are directly related to the development of the C.I.S.E.'s atomic energy program. As a consequence, the list of Milan representatives to the Basle Congress (with few exceptions the same group also attended the Como meeting), is important as a guide to the C.I.S.E. table of organization and it is herewith reproduced:

a) Antonio BORSELLINO, Prof. Physics Institute of Milan Polytechnic;

b) Dr. Alberto BRACCI, Piazza Susa 11, Milan;

c) Piero CALDIROLA, Prof.

d) Giuseppe CARDELLINO, Electrical Engineer, Institute of Higher Physics, Milan;

e) Ugo TACCHINI, Institute for Higher Physics, Milan;

f) Sergio GALLONE, Institute for Higher Physics, Milan;

g) Emilio GATTI, Electrical engineer. Institute for Higher Physics;

h) Dr. Antonio LOVATI Institute of Higher Physics, Milan;

i) Dr. Giovanna MAYER, Milan University;

j) Giovanni ORSONI, Electrical Engineer, Institute of Higher Physics, Milan;

k) Giovanni PERONA, Electrical Engineer, Institute of Higher Physics, Milan;

l) Ruggiero RENZONE, Institute of Higher Physics, Milan;

m) Carlo SALVETTI, Institute of Higher Physics, Milan;

n) Giorgio SALVINI, Prof., Institute of Higher Physics, Milan;

o) Mario SILVESTRI, Electrical Engineer, Institute of Higher Physics, Milan; and

p) Dr. Guido TAGLIAFERRI, Institute of Higher Physics, Milan.

6. As will be indicated below, it is probable that the above listing includes most of Italy's present nuclear energy engineers-in-training.

7. For the Italians the congress provided the first post-war opportunity for a reunion with former colleagues such as FERMI, SEGRE, PICCIONI, PONTECORVE, et al, who had transferred abroad the center of their activity. Source asserts that both meetings were conducted on a very high technical level and were devoid of any aspect of political interest.

8. Of the two known Communists among the Italian nuclear physicists, CORTINI and RANCINI, only the former attended one of the meetings (Como), RANCINI, who had been scheduled to attend the Basle congress, was unable to do so because of the necessity to place the Cervinia cosmic ray station in a condition to receive the large number of foreign representatives who went there following the closing of the Como meeting. At Como, in any event, CORTINI, as well as all the others in attendance, was completely taken with the technical considerations raised by the Faricus papers.

9. As regards the satellite representatives, one only came to attention as of possible interest. This was Karel MAJEWSKI who, it was noted, spoke little, but seemed to make it a point to cover everything that was going on. It was learned that MAJEWSKI appears regularly throughout Europe at technical conclaves, in which he never takes an active part. Allegedly he was present in Florence, early in 1949 for a Congress on Mechanical and counter Thermodynamics. He is regarded as an official Polish Government scientific observer.

C.I.S.E. Activity

10. On the basis of the financial outlay sustained by the C.I.S.E. organization to assure the presence of its personnel at the two congresses, and particularly the meeting at Basle, and on the basis of conversations and statements by AMALDI, BERNARDINI (who attended only the Como meeting), ORSONI, and others, it can be concluded that the C.I.S.E. enterprise has consolidated its position during the past year and is now engaged in a systematic pursuit of its objective without, at least for the present, financial preoccupations.

11. Prof. BOLLA continues to be the nominal head of the organization. Despite his dubious professional worth, BOLLA is given his due by all those connected with the project, in having been most successful in handling the various financial backers of the C.I.S.E. (Montecatini, Edison, S.I.P., etc.) so as to assure a continuous and, evidently, augmented, financial contribution, which has laid a solid foundation for the pursuit of the research project of the organization.

12. The basic cause for C.I.S.E.'s flourishing aspect, however, is the conclusion to which its staff and consultants have come during the past year, that there is sufficient radioactive material within Italy to permit the setting up and alimentation of a nuclear energy reactor without recourse to foreign provision. This conclusion has led to a breaking-off of the tentative contacts, with Indian and Belgian nuclear energy elements, which aimed essentially at assuring Italy a foreign supply of uranium or other radioactive material on a quid-pro basis.

13. In view of this conclusion, the work of the C.I.S.E. has been oriented, during the past year along the following lines:

a) In-training program given in Milan (at the outset under FERRETTI and now under Prof. Piero CALDIROLA) to about 14 young graduate electrical engineers. The program aims at giving these engineers the basic elements of nuclear physics necessary to their final designation as qualified nuclear engineers. The group has been described as being of very high professional capacity and as having already rendered excellent results. At least eight of those participating in the in-training program can be identified on the basis of attendance roll of the Basle congress (where they comprise the only Italians listed who are without academic titles). They are:

CARDELLINO Giuseppe
FACCHINI Ugo
GALLONE Sergio
GATTI Emilio
PERONA Giovanni
RENZONE Ruggiero
SALVETTI Carlo
SILVESTRI Mario

b) Execution of tests and accompanying theoretical analyses of ore samples presented by the various companies forming the C.ISS.E.

c) Construction of radio activity detectors and other instruments required in prospecting for radio active materials, etc.

14. The specific objective at which the in-training program above described, aims, is producing engineers capable of the establishment and operation of a nuclear energy reactor.

15. The reactor planned by the C.I.S.E. will employ heavy water, rather than graphite as moderator medium. The production of heavy water, dependent essentially upon the nitrogenization plants of the Montecatini has gone ahead slowly during the past year and has not been unaffected by the general shortage of electric power in Italy. According to recent statements by Professor BERNARDINI, there will not be sufficient quantity of heavy water to activate and operate a reactor until 1951 (2 years).

16. In the meantime the in-training program of the C.I.S.E. is designed to complete by 1951 all the calculations and preparations for the setting up of the reactor. This is quite clear not only from the conversations of persons associated with the C.I.S.E., but as well from an article recently published by C. SALVETTI in the Italian physics review. This article entitled Il Regime Transitorio dei Reattori Nucleari (parte I)-- The Transitory Regimes of Nuclear Reactors (parte I), appeared in Nuovo Cimento, VI n.s. (17 Sept. 1949), pp. 303-326; it contains the first published results of the studies now under way at the C.I.S.E. It is stated that a close analysis of the article will give an insight into the dimensions and other relevant data of the planned Italian reactor. This article is evidently to be followed by another, or others, on the same subject. It is of interest to note that the Italian approach leans heavily upon the American work, The Science and Engineering of Nuclear Power (Cambridge, 1947).

17. As previously reported one of the essential functions performed by the C.I.S.E. from the start was the analysis and assessment of mineral samples submitted to it for examination by the participating companies. It is evident that in the course of this work, new contributions to general method and theory have been made. The first published example is that of U. FACCHINI, and L. ORSONI (this is the son of the Engineer who heads the Montecatini research branch and who is the chief Montecatini participant in C.I.S.E.), Un Metodo di Utilizzare la Scissione del U-235 per l'Analisi del Contenuto di Uranio nei Minerali - A Method to Utilize the Scission of U-235 for the Analysis of the Uranium Content of Minerals, in Nuovo Cimento, VI (2 July 1949), pages 241-254.

18. The C.I.S.E. organization, was founded as a result of the common desire of the other Italian chemical and power trusts not to run the risk of being beaten out by one or the other in the field of Nuclear energy power development. Essentially the organization is dominated by the Montecatini trust, as a result of the fact that it will be the sole supplier of the heavy water to be used in the reactor. The competition,

however, for the discovery of the sources of radioactive material has remained open among all the participating companies, and has been conducted most actively and in utmost secrecy with regard to the locations of new finds. The explanation for the secrecy which has been maintained lies not only in the desire of each company to safe-guard its own future position in the nuclear energy development program, but more important, in the desire of all the participants not to arouse publicity until the Italian public law whereby ownership of all sub-soil products arereserved to the State, has been changed. It is reported that an attempt will be made under inspiration of the C.I.S.E. participants to affect a change in the law by appropriate legislative action during the coming session of the Chamber of Deputies.

19. In addition to the activity above described, Prof. BOLLA has recently decided to build at the C.I.S.E. a 1,200,000 volt high-tension apparatus similar to that already in existance at the Higher Institute of Health in Rome. BOLLA has persisted in this initiative notwithstanding the advice of other colleagues and visitors who have suggested that the money and effort could be employed more usefully in specific research prjects relating to the reactor. Thus for example, Prof. SEGRE (University of California, Berkeley) suggested to BOLLA that it would be more profitable for the C.I.S.E. to set up a series of investigations on the corrosion rate of the metals to be used in the reactor.

20. The treatment accorded SEGRE is typical of the C.I.S.E. method in the handling of technical experts from abroad. SEGRE was invited to Milan and shown in detail all aspects of the C.I.S.E.'s present activity. The purpose of this is, of course, to secure competent criticism and, if possible, suggestions for improvement from those coming from abroad, who presumably have already worked and solved the same or similar problems.

KOWARSKI's Revelations Regarding the French Reactor

21. The chief French representative of interest at the Basle meeting was KOWARSKI, who discussed the French reactor. KOWARSKI gave the appearance of being reticent on certain aspects of the work, but finished in any case by giving a pretty clear idea of what he did not want to state openly.

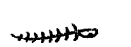
22. The general details on the French reactor have already evidently been i published in a French scientific journal, therefore the sketch made by Source on the basis of KOWARSKI's description will not be repeated here. According to KOWARSKI's statement, however, the reactor has a (external) energy output at present of 3.10^{10} neutrons per cm^2 second.

23. The question whether the output cited might not very well be increased KOWARSKI replied affirmatively, but added that such serious difficulties had already been encountered with regard to the cooling of the reactor (no specialized cooling system was provided for in the French set-up) that it would not be worth the effort. In any case, KOWARSKI stated, work was already underway on a second, much larger reactor, in which the requisite cooling system, would be provided.

24. KOWARSKI and the French group in general were singled out at the Basle meeting for attention because of their opinionated conduct. KOWARSKI was described by one well-known Italian nuclear physicist from abroad, as being a person of only moderate abilities, who had leaned what he knew at the Chalk River plant and was now re-applying what he had learned in France.

25. In his talk, particular attention was aroused by KOWARSKI's reference to, and use of the following alleged international nuclear engineering symbols; (which no one else at this Congress had previously heard about)

 (Fish on surface of water): Heavy water symbol

 (Fish skeleton) : Graphite

 (Snail shell) : Concrete.

French Attempt to Secure Patent Rights to Nuclear Energy Processes in Uruguay:

26. It is reported that in November/December 1948 the French scientific Society presented a large typescript (probably mimeographed, but source cannot be certain on this point) to the competent Uruguayan authorities requesting the concession of a patent on all the methods, substances, and processes therein described.

27. The volume covered the whole nuclear energy field, from the concept of neutrons and their deacceleration by means of various substances such as paraffine, graphite, heavy water, etc., to the structure and operation of the nuclear energy reactor.

28. The scope, and to a certain degree, the naivete involved in the French requests aroused comment in Montevideo.

29. The volume and the request were referred by the Uruguayan officials to Prof. Walter HILL, nuclear physicist of the University, for an opinion. HILL gave the formal opinion that the patent should not be accorded.

30. Evidently the object of this manoeuver was to assure to the French participation in the exploitation of any radioactive substances which might in the future be discovered by anyone in Uruguay.

31. It was not possible to ascertain whether the French had made similar advances in other Latin American countries. This however, is not to be excluded in view of the technique revealed in Uruguay, and therefore would appear worthy of careful follow-up.

32. Professor BERNARDINI is now preparing to return to the United States for another year's tour of duty at Columbia University. BERNARDINI was enthusiastic regarding the treatment accorded him at Columbia, where he began work on a new ionization chamber which he will now return to complete. He will receive a salary of $9,000 for his year's stay.

33. BERNARDINI, it has been noted, is being very reserved with regard to the plans for the trip, evidently in order to avoid giving the impression that he is thinking of transferring permanently to the U.S. (BERNARDINI has been one of those who has lamented most about the "desertions" of Italian nuclear physicists.) It is known in any case that BERNARDINI will be accompanied during his coming trip by his wife and children. He states that his wife and children will return to Italy after a four to six months stay at New York.

34. Needless to say, BERNARDINI's departure focusses more responsibility upon Prof. AMALDI, whose leftist sympathies have been previously reported. The Communist, PANCINI, as a result of BERNARDINI's ineptitude and AMALDI's tergiversating, has in the past year undeniably increased in stature within the heirarch of the Rome Nuclear Physics Institute.

35. With the recent death of the chairman of the Rome University Physics Department, a chair is now vacant. AMALDI is taking full advantage of FERMI's present stay in Italy to build himself up in FERMI's good graces and if possible to persuade FERMI to return to Italy. The vacant chair will probably be offered to Prof. RASETTI, now at Quebec University.

36. The BETA laboratory on which extensive detail has been reported, has gone into an eclipse during the past year. The organization was forced to give up its old quarters at Piazzetta della Ripetta at the end of 1948. This followed hard upon the withdrawal of Ing. FOGLIA (for administrative irregularities) and the cessation of the flow of funds from the FIAT corporation. The laboratory transferred to the Nuclear Research Center's quarters at the University, where little or nothing has been done since. With the development by the C.I.S.E. of its own radioactivity locator, the BETA has lost its monopoly of the field. In general, as was anticipated a year ago, the BETA enterprise has been wrecked by incompetent direction.

25X1A [redacted] Comment: Copies of the official attendance rolls of both conferences are available.